

### **AMENDMENTS TO THE CLAIMS**

This listing of the claims replaces any prior listing of the claims.

1. (Original) A flow cell for photometric analysis comprising:
  - a flow channel having a proximal end and a distal end;
  - an inlet channel and an outlet channel in fluid communication with said flow channel;
  - an excitation lens positioned within the proximal end of said flow channel;
  - a retro-reflecting mirrored lens positioned at the distal end of said flow channel;
  - an emissions window positioned substantially parallel to the long axis of said flow channel; and
  - a reflective surface positioned opposite said emissions window.
2. (Original) The flow cell of claim 1 wherein said excitation lens allows for an excitation beam to travel axially through said flow channel.
3. (Original) The flow cell of claim 2 wherein said retro-reflecting mirrored lens reflects said excitation beam back through said flow channel.
4. (Original) The flow cell of claim 2 wherein said retro-reflecting mirrored lens reflects said excitation beam back through said flow channel multiple times.
5. (Original) The flow cell of claim 4 wherein said reflective surface opposite said emission window directs additional fluorescence out said emission window.
6. (Original) The flow cell of claim 1 wherein said flow channel has a volume of between 0.5 and 15  $\mu\text{L}$ .
7. (Original) The flow cell of claim 6 wherein said flow channel has a volume of between 8 and 9.5  $\mu\text{L}$ .

8. (Original) The flow cell of claim 6 wherein said flow channel has a volume of between 0.75 and 1.25  $\mu\text{L}$

9. (Original) The flow cell of claim 2 wherein said excitation beam is delivered to said flow channel from an excitation monochromator having optics in a first plane.

10. (Original) The flow cell of claim 5 wherein said fluorescence is delivered to an emission monochromator having optics in a second plane perpendicular to said first plane.

11-15 (Canceled)

16. (Original) A method of constructing a flow cell, comprising:

forming plates of various dimensions of clear quartz and black quartz;

assembling said plates, wherein said various dimensions form a flow channel having an inlet port and an outlet port;

fusing said plates to each other; and

fusing lenses to both ends of assembled plates.

17-19 (Canceled)

20. (Currently amended) The A flow cell according to claim 17 for photometric analysis comprising:

a cell body;

a flow channel formed in said body having an input means and an output means;

a light input means positioned axially to said cell body where said light input means and said cell body are within a first plane;

a light source means for emitting an excitation beam of a predetermined wavelength, wherein said excitation beam flows axially through said flow channel producing fluorescence;

a means for retro-reflecting said excitation beam back through said flow channel,  
~~wherein said means for retro-reflecting said excitation beam comprises~~ comprising a  
mirrored optical lens positioned within said flow channel opposite said light input means;

a light output means positioned substantially parallel to a long axis of the flow channel  
and to said first plane of said cell body;

a means for reflecting said fluorescence toward said light output means; and

a light detector means positioned contiguous to said light output means.

21-23 (Canceled)

24. (Currently amended) The A flow cell ~~according to claim 17~~ for photometric analysis  
comprising:

a cell body comprising ~~wherein said cell body comprises~~ plates of various dimensions  
being formed from clear quartz and black quartz;

a flow channel formed in said body having an input means and an output means;

a light input means positioned axially to said cell body where said light input means  
and said cell body are within a first plane;

a light source means for emitting an excitation beam of a predetermined wavelength,  
wherein said excitation beam flows axially through said flow channel producing  
fluorescence;

a means for retro-reflecting said excitation beam back through said flow channel;

a light output means positioned substantially parallel to a long axis of the flow channel  
and to said first plane of said cell body;

a means for reflecting said fluorescence toward said light output means; and

a light detector means positioned contiguous to said light output means.

25. (Currently amended) The A flow cell ~~according to claim 17~~ for photometric analysis  
comprising:

a cell body;

a flow channel formed in said body having an input means and an output means;

a light input means positioned axially to said cell body where said light input means and said cell body are within a first plane;

a light source means for emitting an excitation beam of a predetermined wavelength, wherein said excitation beam flows axially through said flow channel producing fluorescence;

a means for retro-reflecting said excitation beam back through said flow channel, comprising ~~wherein said retro-reflecting means comprises~~ coating the back of an optical lens with evaporated metal chosen from the set consisting of aluminum, silver, and gold;

a light output means positioned substantially parallel to a long axis of the flow channel and to said first plane of said cell body;

a means for reflecting said fluorescence toward said light output means; and

a light detector means positioned contiguous to said light output means.

26. (Original) The flow cell according to claim 25 wherein said evaporated metal is aluminum.

27-29 (Canceled)